

November 30:

SWBAT:

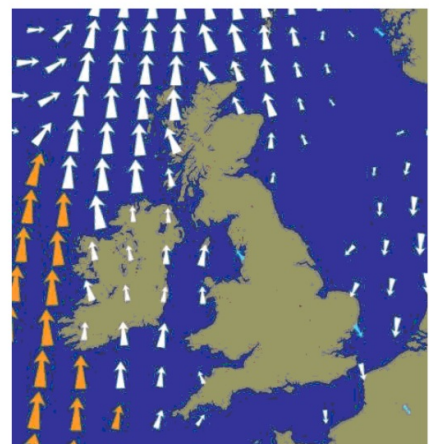
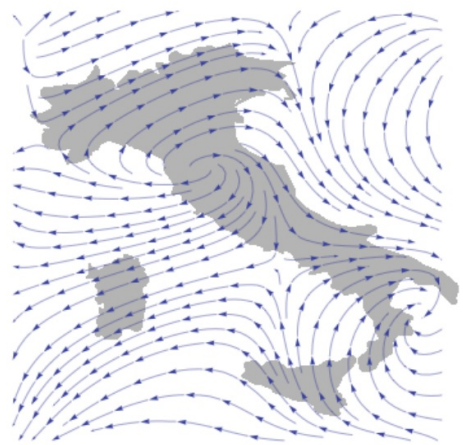
Draw a slope field given a differential equation

Slope Field

shows the tangent line of a function at a given point

-given the derivative draw short line segments to show the slope at any point

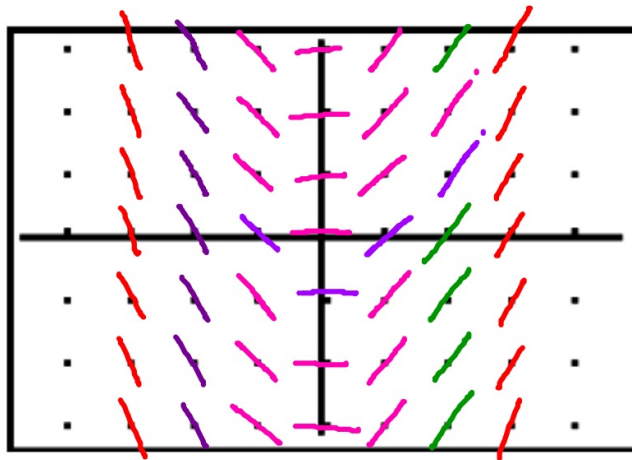
-slope fields are generated by the derivative, but they look like the original function



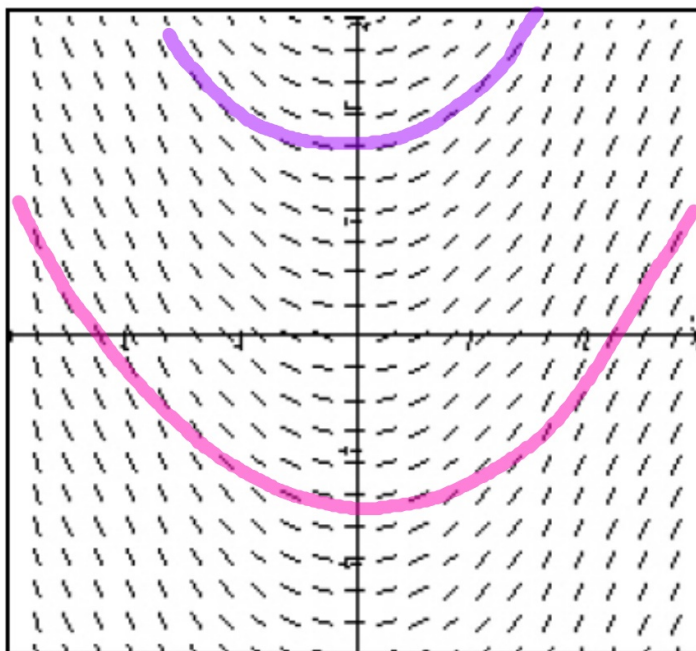
Given the function: $y = 0.5x^2$ Write the derivative: $X = \frac{dy}{dx}$

At each grid point, calculate the value of the derivative and draw a short line segment with that slope.

point	derivative = X
$(0,0)$	0
$(1,1)$	1
$(2,2)$	2
$(-1,1)$	-1



Sketch a function that matches this slope field.

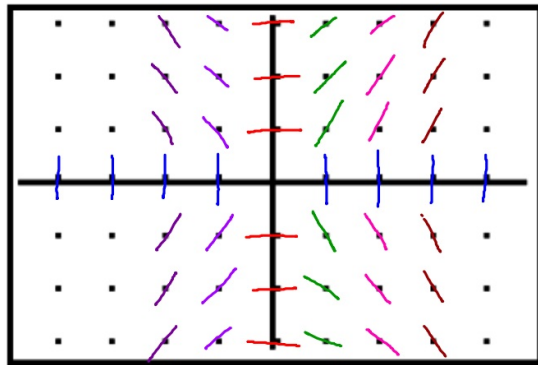


Draw the
function paral
to slopes

What family of functions
seems to match this slope
field?

$$f(x) = x^2$$

If $\frac{dy}{dx} = \frac{2x}{y}$ sketch the slope field



point	slope = $\frac{2x}{y}$
$(0,0)$	$\frac{2(0)}{0} = \text{indeterminate}$
$(1,0)$	$\frac{2(1)}{0} = \text{undefined}$
$(0,3)$	$\frac{2(0)}{3} = 0$

If $\frac{dy}{dx} = \frac{1}{x+3}$, sketch the slope field.

